CLAIMS

What is claimed is:

1. A system for testing a display device, comprising:

(a) a base comprising a first surface, the first surface defining at least four apertures; and

(b) the display device comprising a first surface, a first layer, and a second layer, the first layer comprising a semiconductor substrate, the second layer comprising a transparent material;

wherein the first surface of the display device is coupled to the first surface of the base at each of the at least four apertures such that gravitational forces on the display device are optimally counterbalanced.

2. The system of claim 1, wherein the base is a vacuum box.

3. The system of claim 2, wherein the display device is coupled to the first surface of the vacuum box at each of the at least four apertures by the pressure differential between the atmosphere and the interior of the vacuum box.

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4. The system of claim 1, wherein the semiconductor substrate is silicon.

5. The system of claim 1, wherein the transparent material is glass.

6. The system of claim 1, wherein the first surface of the display device is closer to the first layer than the second layer.

7. The system of claim 1, wherein the first surface of the display device is a surface of the first layer.

8. The system of claim 1, wherein four of the at least four apertures are arranged at the vertices of a rectangle.

9. The system of claim 1, wherein four of the at least four apertures are arranged in two pairs with the distance between the apertures in a pair being less than a fifth the distance between the pairs.

10. The system of claim 1, wherein the first surface of the base defines a plurality of apertures at which the display device is not coupled.

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11. A system for testing a display device, comprising:

(a) a vacuum box comprising a first surface; and

(b) the display device comprising a first layer and a second layer, the first layer comprising a silicon substrate, the second layer comprising a transparent material; and

wherein the first layer of the display device is coupled to the first surface of the vacuum box.

12. The system of claim 11, wherein the vacuum box is mounted on a rotating base.

13. The system of claim 11, wherein the vacuum box comprises a cover having the first surface and a vacuum block.

14. The system of claim 11, wherein the display device is a micro display.

15. The system of claim 11, wherein the first surface of the vacuum box defines at least two apertures and the first layer of the display device is coupled to the first surface of the vacuum box at the at least two apertures.

16. The system of claim 15, wherein the first layer of the display device is coupled to the first surface of the vacuum box at the at least two apertures by a pressure differential.

17. The system of claim 11, wherein the vacuum box is mounted on a first base that is movably engaged along a first axis to a second base.

18. The system of claim 17, wherein the second base is movably engaged along a second axis to a third base and the second axis is perpendicular to the first axis.

19. A system for testing a display device, comprising:

(a) a first base comprising a first surface;

(b) the display device comprising a first surface and one or more electrical connectors, the first surface of the display device mounted on the first surface of the first base;

(c) an electrical probe mounted on a frame coupled to the first base; and

(d) a cam assembly coupled to the frame, whereby the electrical probe can be positioned relative to the display device.

20. The system of claim 19, wherein the display device includes a second surface parallel to the first surface and the cam assembly moves the electrical probe along an axis perpendicular to the second surface.

21. The system of claim 19, wherein the frame includes a second base and the first base is rotatably mounted on the second base.

22. The system of claim 21, wherein the frame includes a third base and the second base is movably engaged along a first axis to the third base.

23. The system of claim 22, wherein the frame include a fourth base and the third base is movably engaged along a second axis to the fourth base and the second axis is perpendicular to the first axis.

24. The system of claim 23, wherein the cam assembly is adapted to move the electrical probe along a third axis perpendicular to the first axis and the second axis.

25. The system of claim 19, wherein the frame includes a plurality of springs biasing the electrical probe away from the display device.

26. The system of claim 19, wherein the cam assembly biases the electrical probe toward the display device.

27. The system of claim 19, wherein the frame includes at least four shafts slidingly coupled to the electrical probe.

28. The system of claim 19, wherein the cam assembly includes a knob adjustably coupled to change the position of the electrical probe.

29. A method of orienting a display device for testing, comprising the steps of:

positioning a first surface of the display device proximate to a first surface of a base, the first surface of the base defining four apertures;

reducing the pressure within the base relative to the pressure on a second surface of the display device; and

sealing the base by blocking the four apertures with the first surface of the display device, such that the display device is held to the base at the four apertures by a pressure differential that optimally counterbalances gravitational forces on the display device.

30. The method of claim 29, wherein the display device includes a substrate layer and a transparent layer and the substrate layer is between the first surface and the transparent layer.

31. The method of claim 30, wherein the substrate layer is silicon.

32. The method of claim 30, wherein the transparent layer is glass.

33. The method of claim 29, wherein the four apertures are arranged at the vertices of a rectangle.

34. The method of claim 29, wherein the four apertures are arranged in two pairs with the distance between the

apertures in a pair being less than a fifth the distance between the pairs.

35. The method of claim 29, further comprising the step of:

positioning an electrical probe relative to the base, such that the probe is electrically connected to the display device.

36. The method of claim 29, wherein the display device is a micro display.

37. A method of coupling a display device and an electrical probe, comprising the steps of:

mounting the display device on a base, the display device including a transparent layer;

mounting the electrical probe on a frame that is coupled to the base; and

actuating a cam assembly coupled to the frame to move the electrical probe relative to the display device along a first axis perpendicular to the transparent layer of the display device.

38. The method of claim 37, further comprising the step of:

rotating the base relative to the probe.

39. The method of claim 37, further comprising the step of:

moving the base relative to the frame along a second axis perpendicular to the first axis.

40. The method of claim 39, further comprising the step of:

moving the base relative to the frame along a third axis perpendicular to the first axis and the second axis.

41. The method of claim 40, further comprising the step of:

rotating the base relative to the frame around the first axis.

42. The method of claim 37, further comprising the step of:

biasing the frame in a first direction along the first axis; and

wherein actuating the cam assembly includes applying force to the frame in a second direction opposite the first direction.

43. The method of claim 42, wherein the step of biasing is performed by a plurality of springs.

44. The method of claim 37, wherein actuating the cam assembly includes moving the frame along four shafts to which it is slidingly engaged.

45. The method of claim 37, wherein actuating the cam assembly includes

moving a first member along a second axis perpendicular to the first axis;

rotating L-shaped cams rotatably connected to the first member; and

applying force through the L-shaped cams to the frame along the first axis.

46. The method of claim 37, wherein the step of actuating the cam assembly moves the electrical probe relative to the display device along a first axis within a particular range of motion.